

1. A formulation for a therapeutic or a cosmetic treatment, which formulation comprises:
at least one anti-sense polynucleotide to a connexin protein together with a
pharmaceutically acceptable carrier or vehicle.
3. A formulation according to claim 1, wherein the polynucleotide is an
oligodeoxynucleotide.
4. A formulation according to claim 1 which contains polynucleotides to one connexin
protein only.
6. A formulation according to claim 1 which contains polynucleotides to more than one
connexin protein.
9. A formulation according to claim 5 in which the polynucleotide to connexin 43 is selected
from the group consisting of:
GTA ATT GCG GCA AGA AGA ATT GTT TCT GTC;
GTA ATT GCG GCA GGA GGA ATT GTT TCT GTC; and
GGC AAG AGA CAC CAA AGA CAC TAC CAG CAT.
10. A formulation according to claim 5 in which the polynucleotide to connexin 26 is:
TCC TGA GCA ATA CCT AAC GAA CAA ATA.
11. A formulation according to claim 5 in which the polynucleotide to connexin 31.1 is:
CGT CCG AGC CCA GAA AGA TGA GGT C.
12. A formulation according to claim 5 in which the polynucleotide to connexin 32 is:
TTT CTT TTC TAT GTG CTG TTG GTG A.
13. A formulation according to claim 1 in which the pharmaceutically acceptable carrier or
vehicle is, or includes, a gel.

15. A formulation according to claim 1 which further includes a surfactant or urea to assist with polynucleotide penetration into a cell.
16. A method of site-specific downregulation of connexin protein expression for a therapeutic or a cosmetic purpose which comprises administering a formulation as defined in claim 1 to a site on or within a patient at which said downregulation is required.
17. A method of reducing neuronal cell death which would otherwise result from a neuronal insult to a specific site in the brain, spinal cord or optic nerve of a patient which comprises the step of administering a formulation as defined in claim 1 to said site to downregulate expression of a connexin protein at and immediately adjacent said site.
19. A method according to claim 17 in which the formulation is administered in a sufficient amount to downregulate expression of said connexin protein for at least 24 hours post-administration.
20. A method of promoting wound healing in a patient which comprises the step of administering a formulation as defined in claim 1 to said wound to downregulate expression of a connexin protein at and immediately adjacent the site of said wound.
23. A method according to claim 20 in which the wound is the result of a surgery.
24. A method of reducing inflammation as part of treating a wound or a tissue subjected to a physical trauma which comprises the step of administering a formulation as defined in claim 1 to, or proximate to, said wound or tissue.

26. A method of decreasing scar formation in a patient who has suffered a wound which comprises the step of administering a formulation as defined in claim 1 to said wound to downregulate expression of a connexin protein at and immediately adjacent the site of said wound.

27. A method of skin rejuvenation or thickening for a cosmetic or a therapeutic purpose which comprises the step of administering, once or repeatedly, a formulation as defined in claim 1 to a skin surface.

30. A method according to claim 27 wherein said formulation is a cream.

37. A formulation according to claim 2, wherein the polynucleotide is an oligodeoxynucleotide.

38. A formulation according to claim 7 in which the polynucleotide to connexin 43 is selected from the group consisting of:

GTA ATT GCG GCA AGA AGA ATT GTT TCT GTC;

GTA ATT GCG GCA GGA GGA ATT GTT TCT GTC; and

GGC AAG AGA CAC CAA AGA CAC TAC CAG CAT.

39. A formulation according to claim 8 in which the polynucleotide to connexin 43 is selected from the group consisting of:

GTA ATT GCG GCA AGA AGA ATT GTT TCT GTC;

GTA ATT GCG GCA GGA GGA ATT GTT TCT GTC; and

GGC AAG AGA CAC CAA AGA CAC TAC CAG CAT.

40. A formulation according to claim 8 in which the polynucleotide to connexin 26 is:

TCC TGA GCA ATA CCT AAC GAA CAA ATA.

41. A formulation according to claim 8 in which the polynucleotide to connexin 31.1 is:
CGT CCG AGC CCA GAA AGA TGA GGT C.

42. A formulation according to claim 8 in which the polynucleotide to connexin 32 is:
TTT CTT TTC TAT GTG CTG TTG GTG A.